

REMARKS

Claims 1-18 are currently pending. Claims 1 and 16 have been amended. The amendments to claims 1 and 16 do not constitute new matter.

The Examiner has rejected claims 1 and 16 under 35 U.S.C. § 112, second paragraph, as indefinite. The Examiner has rejected claims 1-15 and 17-18 under 35 U.S.C. § 103(a) as obvious over Ebel *et al.* (U.S. Patent No. 4,888,412) in view of Sargent *et al.* (U.S. Patent No. 5,629,376). The Examiner has rejected claims 1-18 under 35 U.S.C. § 103(a) as obvious over Lauton (U.S. Patent No. 5,256,317). For the reasons detailed below, the rejections should be withdrawn and the claims allowed to issue. Entry of the foregoing amendments is respectfully requested.

The Claims Are Definite

The Examiner has rejected claims 1 and 16 under 35 U.S.C. § 112, second paragraph, as indefinite. The Examiner states that “the phrase ‘essentially free from formaldehyde’ renders the claim indefinite because it is unclear whether the composition can comprise some formaldehyde.” Applicants note that claim 1 has been amended to delete the phrase “essentially free of formaldehyde.” Applicants assert that claim 1, as amended, no longer refers to the presence of formaldehyde and accordingly is definite.

The Examiner also asserts that the reference to “chromium exhaustion” in claim 16 lacks antecedent basis, because claim 1 does not state that the tanning agent contains chromium. Applicants note that claim 16 has been amended to recite “when utilized in the presence of one or more chromium salts.” Support for this amendment can be found in the specification at, for example, page 5, paragraph 14. Furthermore, Applicants assert that “chromium exhaustion” is a

term of art, and that a person of ordinary skill in the art would understand that “chromium exhaustion” refers to the absorption of the chromium salts by the leather. Applicants submit that claim 16, as amended, now has proper antecedent basis for the phrase “chromium exhaustion.” Accordingly, Applicants submit that claim 16 is definite.

Based upon the foregoing, Applicants assert that the claims are definite, and respectfully request withdrawal of the rejections.

The Claims Are Not Obvious In View Of Ebel and Sargent

The Examiner has rejected claims 1-15 and 17-18 under 35 U.S.C. § 103(a) as obvious over Ebel *et al.* (U.S. Patent No. 4,888,412) (“Ebel”) in view of Sargent *et al.* (U.S. Patent No. 5,629,376) (“Sargent”). The Examiner asserts that Ebel does not teach the multifunctional polymers of the present claims, but that Sargent supplies the missing element. The Examiner states that Sargent provides the motivation to combine the references, and that it would have been obvious to a person of ordinary skill in the art to do so.

Applicants submit that the Examiner has not established a *prima facie* case of obviousness. To establish a *prima facie* case of obviousness, the Examiner must meet three criteria. The Examiner must establish that (1) there is some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings; (2) there is a reasonable expectation of success; and (3) the prior art reference (or references when combined) teach or suggest all the claim limitations. See MPEP §§ 706.02(j) and 2143. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found

in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991).

Applicants assert that there is no suggestion or motivation to combine and react multifunctional polymers in the process of Ebel. While Sargent discloses the use of methacrylic acid, Sargent merely discloses that the methacrylic acid may be used as "dye levelers, soil resist agents... [and] leather tanning and finishing auxiliaries," Sargent does not disclose the desirability of reacting the methacrylic acid with another tanning agent. See Sargent at col. 4, lines 29-32. At best, a person of ordinary skill in the art would be motivated to simply mix the methacrylic acid with the tanning agent resulting from the process of Ebel; a person of ordinary skill in the art would not be motivated to react the methacrylic acid in the process of Ebel to produce a compound wherein the methacrylic acid is polymerized to a sulfonized aromatic compound. There is no suggestion or motivation to specifically add the methacrylic acid to a heated sulfonized aromatic compound mixture to obtain a compound wherein the methacrylic acid is polymerized to the sulfonized aromatic compound, as described in claim 1, as amended. The Examiner has provided no citations or other evidence showing that it would be obvious to add the methacrylic acid at those steps; absent such a showing, there cannot be a finding of obviousness. See MPEP 2143.01 ("[T]he mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination.") (emphasis in original). At best, Ebel and Sargent suggest *trying* to incorporate methacrylic acid into the process of Ebel. However, "obvious-to-try" is not the standard for obviousness in accordance with 35 U.S.C. § 103. *Id.*; see also *In re O'Farrell*, 853 F.2d 894, 903, 7 U.S.P.Q.2d 1673, 1681 (Fed. Cir. 1988).

A person of ordinary skill in the art would not have a reasonable expectation of success in combining Ebel and Sargent, because a person of ordinary skill in the art could not predict that the methacrylic acid used in Sargent would work and react in the same manner when used in the process of Ebel. Applicants note that Ebel does not teach the use of a multi-functional polymer to produce a compound wherein the multi-functional polymer is polymerized to a sulfonated aromatic compound. As noted above, based upon the teachings of Ebel and Sargent, a person of ordinary skill in the art would not be motivated to use methacrylic acid to create a compound wherein a multi-functional polymer is polymerized to a sulfonated aromatic compound. In addition, because the reactions disclosed in Ebel and Sargent utilize different components, and are wholly different reactions, a person of ordinary skill in the art would not be able to predict that a component that functions in Sargent would also function similarly in Ebel, because a compound that may be usable in a given reaction is not necessarily effective in a different reaction. Accordingly, a person of ordinary skill in the art would not have a reasonable expectation of combining Ebel and Sargent to reach the present invention.

Applicants note that claim 1 has been amended to recite that “the sulfonized aromatic compound is polymerized to the multi-functional polymer or polymers.” Support for this amendment can be found in the abstract of the invention. Neither Ebel nor Sargent discloses the polymerization of an sulfonized aromatic compound with a multi-functional polymer. Accordingly, Ebel and Sargent do not teach all of the limitations of the present invention.

Applicants further submit that the present invention is not obvious because it provides unexpected results. The use of the organo polymeric matrix of the present invention enables the elimination of the conventional pickling process, due to the presence of multifunctional ligating sites, which stabilizes chromium and prevents it from precipitating at higher operational pH.

See, for example, specification at abstract and at page 5, paragraph 13, and at page 8, paragraph 29. In contrast, Ebel envisions the use of the tanning agent with a pickled hide. See Ebel at col. 2, lines 13-15. The present invention is disclosed to be an effective tanning agent, but without requiring the standard pickling process. See specification at page 5, paragraphs 12-16. Accordingly, the present invention provides the unexpected property of allowing leather tanning without first pickling the hide.

Based upon the foregoing, Applicants submit that the present invention is not obvious over Ebel or Sargent, alone or in combination, and respectfully request withdrawal of the rejection.

The Claims Are Not Obvious In View Of Lauton

The Examiner has rejected claims 1-18 under 35 U.S.C. § 103(a) as obvious over Lauton (U.S. Patent No. 5,256,317) (“Lauton”). The Examiner states that Lauton teaches all of the elements of the present claims except heating of the organic ligand and aromatic compound mixture, heating the mixture with a multifunctional polymer, aeration and drying processes, or chromium exhaustion. However, the Examiner asserts that it would have been obvious to modify the teachings of Lauton to supply the missing steps “because Lauton suggests an analogous tanning agent comprising the claimed components and furthermore discovering optimum temperature involves only routine skill in the art.” The Examiner further states that the analogous tanning agent resulting from Lauton would have similar properties to the tanning agent produced from the present claims, and would therefore be expected to have similar chromium exhaustion.

Applicants submit that the Examiner has not established a *prima facie* case of obviousness. The Examiner has not supplied sufficient suggestion or motivation to modify Lauton to reach the present invention. The Examiner acknowledges that Lauton does not teach heating the organic ligand and aromatic compound mixture at a temperature of 60⁰C to 80⁰C, nor does Lauton teach heating the resulting mixture with a multifunctional polymer at a temperature of 40⁰ to 100⁰C. However, the Examiner asserts that it would be obvious to include these steps.

Applicants assert that Lauton does not provide any suggestion or motivation modify the disclosed process as asserted by the Examiner. Lauton discloses heating naphthalene and sulfuric acid at temperatures upwards of 105⁰C, but does not provide any suggestion or motivation to reduce those temperatures to the ranges recited in the present claims. See Lauton at col. 3, lines 25-38. The Examiner asserts that it would have been obvious to apply the heating step, but provides no evidence as to why it would be obvious; Lauton in fact does not provide any suggestion or motivation to use a lower temperature. Such a showing is insufficient for a finding of obviousness. MPEP 2143.01 (A statement that modification of the prior art to meet the claimed invention would have been 'well within the ordinary skill of the art at the time the claimed invention was made' because the references relied upon teach that all of the aspects of the claimed invention were individually known in the art is not sufficient to establish a *prima facie* case of obviousness without some objective reason to combine the teachings of the references.") (emphasis in original). Furthermore, while Lauton discloses the use of polymethacrylic acid, it is added after the naphthalene and sulfuric acid is reacted, and the resulting mixture is not heated. See Lauton at col. 3, lines 59-68. Lauton provides no suggestion or motivation to modify the disclosed process in order to add the additional mixture and heating steps, nor has the Examiner identified any suggestion or motivation to modify Lauton to reach

the present invention. As noted above, in order for a combination to be obvious, the prior art must suggest the desirability of the combination; a combination is not obvious simply because it is possible. MPEP 2143.01.

A person of ordinary skill in the art would not have a reasonable expectation of success in reaching the present invention based upon the disclosure of Lauton. As previously noted, Lauton teaches the addition of polymethacrylic acid after the aromatic compound and sulfuric acid are reacted, and does not include an additional heating step. The step of heating the sulfonized aromatic compound with the multifunctional polymer in the present invention results in polymerization of the multifunctional polymer to the sulfonized aromatic compound. Thus, based upon the teachings of Lauton, which does not include the step of heating the polymethacrylic acid with the sulfonized aromatic compound, a person of ordinary skill in the art would not have a reasonable expectation of obtaining the tanning agent produced by the process of the present invention. At best, Lauton teaches a mixture of a sulfonated aromatic compound and a multi-functional polymer, wherein the two components are not polymerized.

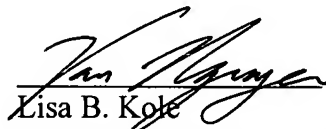
Lastly, Lauton does not teach all of the limitations of the present claims. As noted above, Lauton does not teach heating the organic ligand and aromatic compound mixture at a temperature of 60⁰C to 80⁰C and heating the resulting mixture with a multifunctional polymer at a temperature of 40 to 100⁰C. Although Lauton does disclose the use of polymethacrylic acid, it is not disclosed as part of the reaction of naphthalene with sulfuric acid. The polymethacrylic acid is in fact added after the reaction, and the resulting mixture is not heated. As noted above, neither Ebel nor Sargent teaches separate mixture and heating steps as claimed in the present invention. As such, Lauton does not teach all of the elements of the present invention.

Based upon the foregoing, Applicants submit that the present invention is not obvious in view of Lauton, and respectfully request withdrawal of the rejection.

CONCLUSION

Entry of the foregoing amendments and remarks into the file of the above-identified application is respectfully requested. The Applicant believes that the inventions described and defined by claims 1-18 are patentable over the rejections of the Examiner. Withdrawal of all rejections and reconsideration of the amended claims is requested. An early allowance is earnestly sought.

Respectfully submitted,


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